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ABSTRACT

This report presents first year (1984-85) findings of The Writing Project, a 2-year school-based study of the use of word processing to improve learning disabled children's writing skills. Based in three Massachusetts school districts, the project focused in the first year on intensive observation of 14 fourth grade children as they wrote with word processors. Two contrasting teaching environments were identified: the compliance model, aimed at promoting students' mastery of specific writing conventions and writing structures/ideas presented by the teacher; and the facilitation model, aimed at helping students generate and expand ideas and structures of their own. Facilitative models which promote student involvement in composing were found to have three overall characteristics: (1) teachers give children strategies for generating and organizing their own ideas; (2) teachers focus children's attention at the drafting stage on developing ideas in writing, rather than revising and editing, or on mastering the word processor; and (3) teachers reinforce children as capable thinkers and writers. (DB)

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The Writing Project

A Model Teaching Environment For Using Word Processors With LD Children

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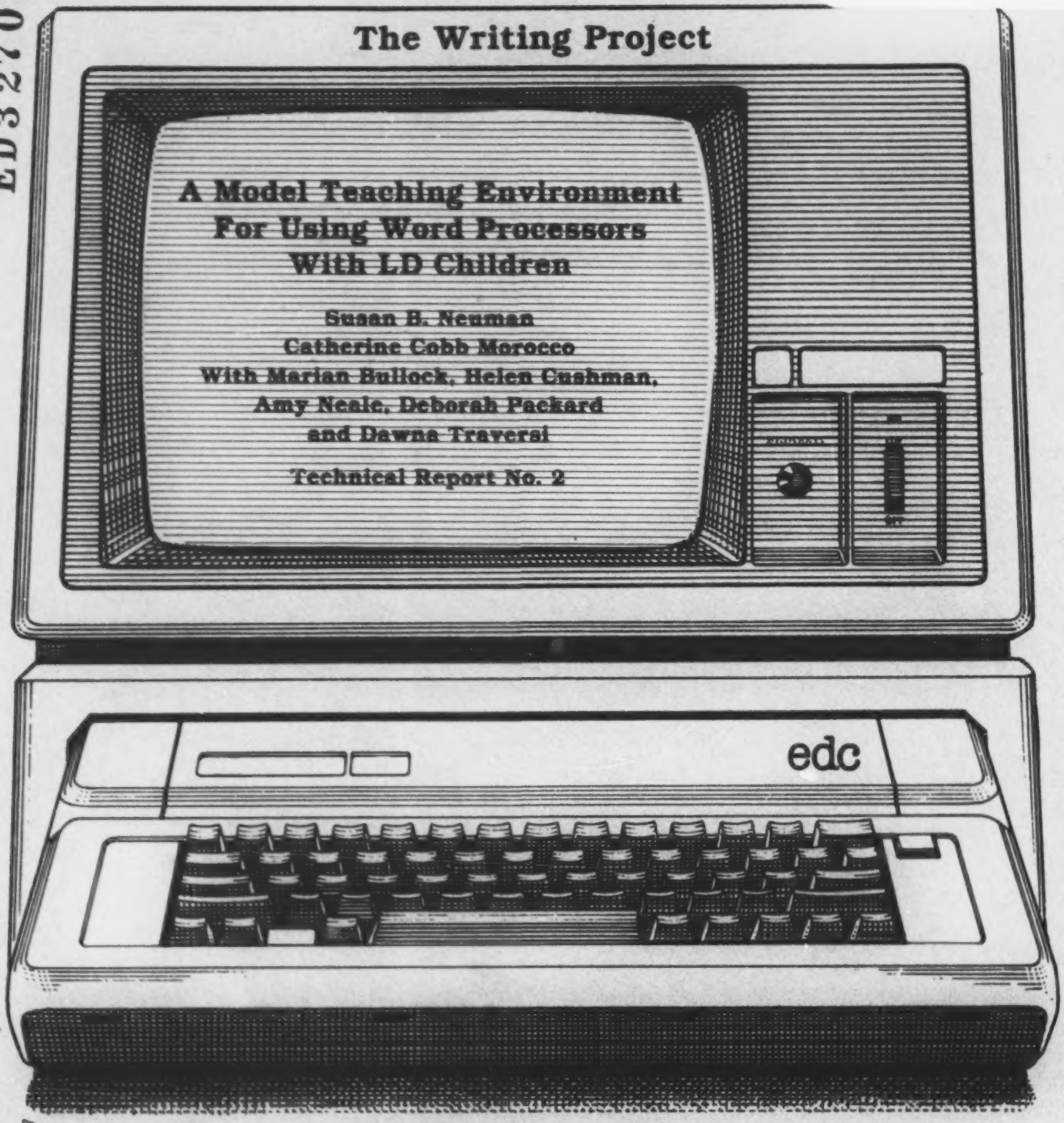
Technical Report No. 2



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This report presents first year (1984-85) findings of The Writing Project, a two-year school-based study of the use of word processing to improve children's writing skills. Funded by the U.S. Office of Education, Special Education Programs, the project is exploring how remedial teachers can integrate computers into their writing activities in resource rooms and substantially separate classrooms. Based in three Massachusetts school districts, the project focused in the first year on intensive observation of fourteen fourth grade children as they wrote with word processors. A companion report (Technical Report No. 1) is also available for distribution.

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This and other reports can be obtained from:

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A MODEL TEACHING ENVIRONMENT FOR USING WORD PROCESSORS WITH LD CHILDREN

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INTRODUCTION

Learning disabled students often feel they have nothing to say. It is easy for teachers, as well as the students themselves, to attribute the problem to a lack of ideas. However, the work of writing theorists (Flower and Hayes, 1980, 1981) suggests an alternative view. Rather than lacking ideas, many learning disabled children, like inexperienced writers, lack the strategies for eliciting and organizing ideas. For children with learning disabilities, the "out of ideas feeling" that signals the end of a train of thought, often comes frequently and quickly in composing. The children tend to lack a repertoire of procedures to enable them to generate another train of thought. Here is a typical example:

> Child: I don't know what to write about. I hate school.
>
> Teacher: Why don't you write about why you hate school?
>
> Child: I don't know.
>
> Slowly the child types on the computer: The reason I do not like school is because when I have to get to school early at 8:45 and get out at 2:45.
>
> T: Why don't you like that?
>
> C: I don't know. I just don't like school.
>
> T: You must have a reason for not liking school. What's tough about getting to school early?
>
> C: I have to wake up at 5:00 or 4:00.
>
> T: Then tell me, "I have to wake up at---------"
>
> The child types in "I have to get up at 4:00 or 5:30." That's all I want to write Mrs. F, cause that's all I can think of.

This is a common example of the way many LD children approached the writing process. They tend to regard writing activities as a chore, a task to be completed as quickly as possible. However, our study of microcomputers and writing for fourth grade students indicated a number of teaching strategies that slowly changed these attitudes. These strategies attempted to engage children in the writing process, by "becoming like a writer." The emphasis was on developing a certain self-consciousness about the writing process and an awareness of useful techniques writers use.

An earlier report (Technical Report No. 1) describes several different approaches remedial teachers in the study used in fostering children's writing skills. Teaching writing as a whole process rather than as a set of isolated skills, and using word processors to facilitate that process, appeared to most effectively involve students in writing.

This report describes specific teacher techniques for using word processors to improve LD children's writing capabilities. These techniques together foster a "facilitating writing environment," characterized by assumptions about the LD child which emphasize their capabilities as authors, a set of principles about the nature of writing, and specific procedures that teachers use in monitoring and intervening in child's writing activities. This report focuses particularly on the character of teacher interventions which had the most positive impact on students' first drafts. The discussion is illustrated with examples drawn from participating classrooms.

RESEARCH SETTING AND METHOD

The Writing Project* is a field-based study designed to document how word processors may be used to improve writing for LD children. The study was carried out in collaboration with five remedial teachers in the Boston area and focused on fourteen fourth-grade students. These students represented diverse socio-economic and ethnic backgrounds and had varying degrees of learning difficulties. The study combines intensive ongoing classroom observation with periodic teacher interviews and monthly teacher researcher meetings which are used to facilitate information sharing. Teachers were encouraged throughout the year to explore new methods of using the computer to teach writing skills.

Classroom observations and students' writing were examined to analyze teacher intervention strategies in writing. First draft writing products (before final revision) were reviewed to determine their productivity (number of words) and richness of ideas. Corresponding observation data on students' actual writing of these products were analyzed in terms of students'

* The EDC Writing Product is funded by the U.S. Department of Education, Special Education Programs.

involvement in the writing process and their sense of personal ownership of their writing products.** This analysis resulted in our formulating models of two contrasting teaching environments. One environment, the compliance model, is aimed at promoting students' mastery of specific writing conventions and their adherence to writing structures and ideas presented by the teacher. The other environment, the facilitating model, is aimed at helping students generate and expand ideas and structures of their own. Figure 1 provides an overview of the major features of each model.

It is the facilitating model that produced first drafts with the greatest richness of ideas, coherence of organization, student involvement in the composing process, and sense of ownership of the written draft. While the emphasis of this paper is on presenting the facilitation model, contrasting examples are drawn from a "compliance" model to clarify the approaches which appear to be most effective with learning disabled children.

A WORKING MODEL

Based on our observations, our definition of a facilitating writing environment involves two major features. First, it fosters a classroom atmosphere that encourages LD students to express their ideas, and to translate them into writing. Such a climate gives students opportunities to develop an awareness of the role of the writer. Second, a facilitating environment promotes children's engagement in composing and promotes their sense of ownership and control of their writing activities.

** In our research we identified three indicators of "involvement" (1) ownership -- the child evidences pride in himself or herself as author (wants to take print-out home, asks to read text aloud to peer); (2) attention to writing -- the child focuses on the content of the writing by talking about organizing ideas and brainstorming; and (3) productivity -- the child physically produces written text. These represent affective, cognitive, and motoric aspects of writing.

In this model, the teacher generally regards writing as a problem-solving process which LD students, like all others, are capable of learning. In contrast with another current view of LD children, which often assumes that they are neurologically damaged, the "facilitation" teacher expects that, given the opportunity to develop a wider repertoire of learning skills, LD children can succeed at a level close to, if not on par, with their mainstreamed counterparts.

The most critical component of this writing environment that was evident across all classrooms was the importance of teacher intervention. This was particularly true with the child who was anxious about writing. Sometimes anxious children would run out of ideas after only two or three words were written. Teachers following a facilitating approach would intervene to suggest new writing strategies, or use expansion techniques to get the child "on track" once again. More than any other component, it was the teacher intervention techniques in the writing process that created a positive writing environment.

Based on our analysis, effective interventions, that is interventions which promoted student involvement in composing, have three overall characteristics:

1. They give children strategies for generating and organizing their own ideas, rather than imposing content and organization on them.

2. Until children have written a draft that expresses their ideas and purpose, teachers focus children's attention on developing ideas in writing, rather than on revising and editing, or on mastering the word processor.

3. They help children manage their anxiety and lack of confidence by reinforcing them as capable thinkers and writers.

As we discussed above, word processors can be active partners in very different writing approaches. They can contribute to disengaging a child from his/her writing, or to creating a powerful sense of "authorship." In a facilitating environment, the teacher continually uses the word processor in the context of helping the child relax and expand ideas. In alternative contexts, where the emphasis is on the child's compliance with "correct" writing form and content, the word processor can prove more of a hinderance than a help to the LD child.

FIGURE 1

Two Models of the Teaching Environment

Compliance Model	Facilitating/Ownership
DEFINITION OF WRITING	
Writing involves the mastery of simple to more complex units of text, e.g. words to sentences to paragraphs, and the mastery of writing conventions.	Writing is a problem-solving process involving a number of different planning and thinking processes, including recalling, organizing, generating new ideas, translating ideas into writing, reviewing.
FOCUS ON LD WRITER	
LD children have major deficits in writing conventions and mechanics and often lack sequencing and organizing abilities; some have difficulty in generating new ideas.	LD children are capable of developing ideas, but lack skills and experience in retrieving information, planning, generating ideas, and managing anxiety.
TEACHER ROLE	
Sets the goals and problems for the child	Facilitates child's "finding the problem"
Focuses on the form of the product	Focuses on helping the child solve the communication problem
Suggests, promotes content areas and directions; specific content	Provides child strategies for generating ideas and structures for expanding them
Reinforces/praises correctness, congruence of writing with original problem and with writing conventions	Reinforces the child's ideas, capabilities as a writer, and ownership of the text

Compliance Model	Facilitating/Ownership
WORD PROCESSOR FEATURES	
Facilitates re-reading to identify errors or lack of congruence with conventions	Facilitates child's re-reading of text to stay engaged in content
Makes content visible for teacher evaluation	Facilitates talking about child's ideas because of public, readable character of child's text
Provides for easy deletion and change of text to bring text in line with problem, and with guidelines or conventions	Facilitates teacher's re-reading of text to help child stay engaged in content; enables teacher to praise content, promote expansion
Can provide way for teacher to make a variety of kinds of evaluations and give child control over which to focus on	Provides for easy insertion, addition of text as new ideas emerge
Makes available multiple print copies, to give feedback on hard copies other than child's own copy	In co-composing or dictating situations, the neutral print helps child maintain ownership of text
Makes available formatting features useful for well-formed text: lines even, even spaces between letters and words, letters even, indenting, centering, etc.	Temporary character of print enables child to begin and erase several times when starting a piece of writing
	Provides for filing and updating notes or information to guide writing
DESIRED CHILD OUTCOMES	
Child is knowledgeable about writing rules and conventions	Child is engaged in writing process; has a sense of ownership
Written product reflects mastery of writing conventions	Written product has richness of ideas and structure and organization is appropriate to child's goal

The three overall characteristics of "facilitating" teacher interventions are discussed below, including examples from classroom observation data, and a description of contributing roles played by the computer. A full listing of teacher intervention techniques, discussed in the remainder of this section, is given in Figure 2.

CHARACTERISTICS OF "FACILITATING" INTERVENTIONS

EFFECTIVE INTERVENTIONS GIVE CHILDREN STRATEGIES FOR GENERATING AND ORGANIZING THEIR OWN IDEAS, RATHER THAN IMPOSING CONTENT OR ORGANIZATION ON THEM

Facilitating teachers did not tell children what to write. Instead they provided students with a context for discussion and helpful procedures or "hooks" for getting them started in writing. These included conversational and cognitive strategies. Conversational approaches often included joint brainstorming, having the child tell a story, encouraging them to recall personal experiences. Cognitive strategies often provided students with new ways to gather and organize information. For example, in one case, the teacher asked a child who was having difficulty writing to draw a picture and label each item. This picture then became a useful guide to writing a very well-articulated description on the computer.

When the child seemed to run out of ideas, teachers used a number of expansion and oral rehearsal techniques to maintain engagement (see Figure 2 No. 1 - 7: re-reading, expanding child's text and oral rehearsal). But these techniques very clearly were driven by the child's ideas and choices and not the teacher's. This distinction is important. Two examples of teacher expansion techniques are given below, the first which describes the facilitating model, the second, the compliance approach.

Expansion Sequence -- Facilitating Model

Teacher: I'd like you to write about mittens.

Child: (types) "They are hot inside--some are fery inside--and there diffrent colors--they go on your hands." That's all I can think of.

T: Let's pretend I've never seen a mitten or a glove. Is there a difference between them?

C: Yeah, because a mitten's sewed.

T: And gloves are stapled?

C: (laughs) Oh, mittens are knitted.

T: Ok, that's a good one.

C: Should I write that?

T: Sure. (child types "Mittens are knitted") That's great.

C: And in gloves they have fingers and mittens they just have a thumb and a whole bunch of places for the fingers. (He types this in.)

Expansion Technique -- Compliance Model

T: (reads an autobiographical description which child is composing): "And I like to wear jeans with a favorite shirt." Great. Why don't you say what your favorite shirt looks like?

S: Well, I have more than one shirt.

T: Well, the reader would like to know what it looks like.

S: There are different ones. They look different.

T: Are they pullovers? Button downs?

S: Yeah.

T: I'm just saying it would help if they wanted to know what you looked like, to tell them what your shirt looks like. Do you see?

S: Yeah.

T: Think about it.

FIGURE 2

FACILIATING TEACHER INTERVENTIONS
DURING WORD-PROCESSOR COMPOSING

1. Re-read (or have the child re-read) text to maintain and regain child's engagement in the content.

2. Expand child's text

   - Open expansion - "What else would you like to say?"

   - Sub-topic expansion - "Tell me more about his clothes."

   - Expansion sequence (co-composing) - T: What do you like to do in the snow? S: Go sledding down our hill. T: What do you like to slide on?

   - Request clarificaton - "Are you talking about your father?"

   - Reiterate expansion - "Remember to tell me more about his clothes."

3. Oral rehearsal - conversation about the child's topic, prior to or during writing.

4. Provide conversational model (oral strategies) for generating ideas - "Pretend you're talking to someone." "Tell me the story about that."

5. Provide cognitive strategies for recalling information or generating ideas - "Close your eyes and write whatever comes to your mind." "Draw a map of how the Ritz looks, and use it to guide your description."

6. Elicit dictation - teacher takes over keyboard while child "tells" what to write.

7. Request that the child write down what s/he has expressed orally - "Fantastic! Write that down."

8. Facilitate a focus on writing:

   - Help child manage spelling and mechanics problems

   - Help child manage writing tools (find keys, manage text-editor functions)

FIGURE 2, CON'T
FACILITATING TEACHER INTERVENTIONS
DURING WORD PROCESSOR COMPOSING

9. Mirror/simulate audience reaction to child's writing:

   - dramatize audience's emotional response - "My gosh, you were playing with dynamite?"

   - express audience's information needs/viewpont - "I wouldn't know who you were talking about." "You really helped me see that."

10. Foster child's self-esteem as writer:

   - praise/identify child as a writer - "Finding a topic is always a hard part for writers." "He is such a writer!"

   - verify child's authorship role; give child choice in changing text - "Is this what you want?"

   - praise child's ideas/oral or written - "That's so interesting!"

In the first example, the child was encouraged to further expand his work using his own language and ideas. While, at times, the teacher was fairly directive, the emphasis was clearly on helping him expand his text by recalling information. This intervention strategy seemed to communicate that the child's ideas were worth writing down. In the second example the teacher goes beyond facilitating the child's own ideas, to promoting specific content that reflects the teacher's own interests rather than the child's. In this situtation, the child became less involved in composing.

Our observations indicate that children were resistant to writing down specific words that teachers suggested. Even the less confident students, whom we might expect to comply with strong teacher suggestions, resisted substituting the teacher's ideas for their own. Children resisted by arguing with the relevance of the suggestion, as in the above example, or by iterating their own content or strategy, as in the two examples below.

Student types: He is power hunger He can cary out 200 tons in his Dump Truck form.

Student: I'm finished.

Teacher: Do you have two paragraphs, one about the inside and one about the outside? (of the character) From here it looks like one paragraph.

Student: I only have one sentence telling about the outside about what he transforms to.

* * * * * *

Teacher: Tell me something about how it falls from the sky. Does it just land like an airplane or what?

Student: No, I said 'it comes from the sky.'

Teacher: Does it come in one big lump?

Student: No, in little bits and flakes. (Definite tone)

The Role of the Computer

The word processor can contribute in several ways to involving children in generating their own ideas. The computer allowed children to take risks in beginning to write. Beginning attempts could be easily erased as the child thought of additional ideas. Students often began to write sooner than before; prewriting and first draft attempts often merged in writing sessions. The very magic of the computer, however, had, at times, to be channeled so that children would not just simply generate and erase text. Teachers, therefore, developed a number of creative techniques to help students do "planning" on the computer that might lead to a "committed" idea for further writing. Using the computer for "brainstorming" is one example.

> S is to "brainstorm" on the computer, by writing whatever word comes to mind. He slowly writes two complete sentences, then runs out of ideas.
>
> T: When you get stuck, this is something that my older kids do. They just write 'blank.' The thing is, you can't stop writing.
>
> S: Yeah, but I don't have nothing else to write about.
>
> T: Then you know what to do? (stands over him and types 'blank'.) Tell me a word that you're thinking of in your head, any word.
>
> S: Autobiographies. (T types this)
>
> T: What does that make you think of?
>
> S: Working. (T types this)
>
> T: Another word.
>
> S: Unnormal powers.
>
> When the teacher types the words 'unnormal powers', and he sees them on the monitor, he comments:
>
> S: I wish I could have unnormal powers.
>
> T: When you write, you can.

After several more minutes of discussion on "unnormal powers" the notes were printed out. The student used those notes as the basis of a writing activities at the computer the next day.

Teachers found that there was a public quality about the screen. Early ideas were accessible for teachers and other children to discuss because the writing was legible and available for all to see. The monitor functioned as a "neutral ground" where children and teachers could brainstorm together, with the resulting words and phrases all appearing together as one activity. Teachers felt it was easier to interact with children in their writing when they were writing on the computer than when they were writing with paper and pencil. We found that teachers were drawn to talking with children and providing ways to keep them thinking. Re-reading became a primary way of maintaining the child's engagement in writing. It also enabled the teacher to praise the content of the text as well as to encourage expansions.

EFFECTIVE INTERVENTIONS FOCUS ON THE CHILD'S IDEAS, RATHER THAN ON EDITING OR ON MASTERING THE WORD PROCESSOR

Writing requires children to focus not only on the content of the text but its organization. These dual processes require different types of strategizing. Good writers allow themselves to work on one set of processes and return to the other at a later time (i.e. I'll work on spelling or punctuation later on). Children who are able to keep issues of spelling, operating the word-processor, and punctuation at abeyance for a while, seem to continue to work on their ideas, and stay involved in writing.

Learning disabled students tend to be anxious about spelling and mechanics. They are often concerned about "saying it right". Juggling writing constraints, particularly for these students, then, is a primary concern. These mechanical issues tend to draw these children away from their major focus of generating and writing ideas. Here is a typical example:

Child: How do you spell 'reason'?

Teacher: Think. REASON.

Child: R-E-A-S-O-N?

T: Good.

C: I don't know what to write now.

We found that teacher intervention techniques which encouraged children to keep ideas in the foreground were the most effective (Figure 3, No. 8). Teachers who acknowledged spelling concerns but handled them quickly, by encouraging the children to use invented spelling, helped students maintain a high level of involvement in writing. This is not to suggest that teachers did not teach spelling. Rather, they assured students that spelling would be attended to at a later time, by writing "key words" in a dictionary or making personal word lists.

Effective teachers tended to handle word processing problems (finding letters, erasing text, moving the cursor) by serving as "trouble shooters," rather than stopping to instruct children in these skills during the composing process. They solved the problem quickly, then moved back to the content of the writing. When it was necessary to focus on the word processor or on mechnanics, the teacher helped the child make the transition back to generating ideas. They did this by re-reading the text or by asking questions.

Facilitating teachers did not focus on revision until the first draft was completed. Completeness or organization of sentences, appropriateness of syntax, relationships between paragraphs were not discussed at this particular phase of the writing process. This approach strongly differed from teachers who followed a more compliant model. These teachers often focused on revision during the composing process. When this occurred, children tended to become anxious or preoccupied with their spelling and punctuation rather than generating ideas. These hypothetical examples illustrate this contrast:

<u>A Facilitating Model</u>

Student: I'm finished with what I want to say about this.

Teacher: Can you read it to me?

S: (reads) He has a very rough looking face that scares me when he laughs.

T: Oh, I can really see him! (shivers dramatically)

A Compliance Model

Student: I'm finished with what I want to say about this.

Teacher: Can you read it to me?

S: (reads) He has a very rough looking face that scares me when he laughs.

T: What a good complete sentence!

These conclusions about teacher interventions are consistent with the work of other researchers (Graves, 1983, 1985a, 1985b; Flower and Hayes, 1980). From closely studying the writing process of older writers, for example, Flower and Hayes found that writers use different "plans" or strategies for generating ideas than they do for translating those ideas into writing. For example, generating ideas requires "plans" like thinking aloud, brainstorming, searching memory, or following an interesting idea, while translating ideas into writing requires thinking about the reader, organizing ideas, thinking how the product should look. While experienced writers can shift back and forth between generating and translating "modes," inexperienced writers, (and certainly those with learning disabilities in addition) will not be able to shift back and forth easily. Their writing process is likely to break down when the writing activity requires that they shift between modes.

The Role of the Word Processor

Because it is a sophisticated writing tool, the word processor makes editing and revising of text particularly attractive. In fact, it is too attractive. Our observations indicated that in a large number of instances, revising and editing merged so completely with the composing process as to overcome the latter in importance. This was indeed unfortunate because it often led to written materials that were technically correct, but shallow in ideas, insight, or the child's own "voice."

While its editing features sometimes seems most obvious to teachers, the word processor did facilitate planning and generating activities that contribute to creating a first draft. In many classes, topics would be filed, or information from the library, observations, conversations, reading, would be recorded in a way that children could update them easily. These lists could

be recalled when students needed to refresh their memories for new ideas. Teachers could also facilitate this process.

> Teacher: Think back to the game. Choose one moment in the action which you think was important to how the game came out. Now, just type the words and phrases to describe exactly what was happening in that moment.

This type of activity released children from the anxiety of writing mechanics. The focus was on ideas, and not the organization of ideas into writing forms. If it became necessary, this activity gave children the opportunity to delete and explore new ways to approach the writing assignment.

As earlier examples suggested, the word processor, with its flexibility, allowed teachers to reinforce and expand the child's thinking in a way that would have been difficult with paper and pencil. The word processor was also useful for sequencing ideas. In many cases, learning disabled children lack these skills. The word processor allowed teachers to use a two-step approach. First, children were encouraged to write down their ideas, as these thoughts came to mind. The teacher, then, during a conference could help the child specify which activities came first, second, etc.. The child could then easily rearrange sentences, using the "move" procedure with the teacher's help, to organize the text sequentially.

It was also evident from our observations, that children needed a moderate amount of expertise with word processing before being able to focus on generating ideas on the computer. We found this to be true in two areas. First, the children had to be familiar with the keyboard. This is not to suggest that they had to touch type. Rather, their skills in keyboarding needed to be sufficient that they no longer had to "hunt and peck" for letters, but only "peck." Second, the child needed some primary skills in word processing, such as the delete, insert, save, print functions. Without these primary skills, attention tended to be drawn away from the writing task, to matters related to the machine.

We found that in settings where children had some separate practice sessions to familiarize them with the keyboard, they developed keyboarding fluency much more quickly than did students whose skills were simply allowed to evolve "naturally." While some students were able to acquire keyboarding facility in the latter context, others were not. A few students who were unable to find keys easily after several months, evidenced some "computer phobia" -- extreme reluctance to work on the computer. In one case, a student would angrily call the computer "Stupid!" seeming to project his own felt inadequacy toward the computer.

Word processing is not easy for children. It involves a number of operations that do not appear at first to make sense to chil[illegible]. For example, the "delete" function is difficult because it requires a child to position the cursor one letter beyond the actual letter he/she is trying to erase. The teacher's role as a troubleshooter, therefore, becomes critical. It allows the child to continue to focus on the writing task. Teachers had to be extremely familiar with the word processing program (Bank Street Writer). At times, when students became discouraged with the new writing tool, the sensitive teacher would move the cursor over to the correct letter, delete a word etc., acknowledging that the first stages of learning with a new machine are the most difficult.

EFFECTIVE INTERVENTIONS HELP CHILDREN MANAGE THEIR ANXIETY AND LACK OF CONFIDENCE BY REINFORCING THEM AS CAPABLE THINKERS AND WRITERS

The teachers' use of self-esteem related techniques (See Figure 2, No. 9 & 10) created a climate of acceptance of the child's ideas. They reflect the assumption that children can generate good ideas, and that the content of their writing should take precedence over its organization and "correctness" during early drafts. LD students' engagement in writing was very closely tied to having a warm and nonjudgemental person respond with genuine interest to their ideas. This attitude enabled them to feel like they had something of value to communicate to others, an attitude which is essential in a "facilitating" environment.

One particular story related by Lucy Calkins, a professor at Columbia University, clearly illustrates this role of the teacher. During a classroom writing session, a child wrote a story about her grandmother who has just died. In a follow-up workshop, Professor Calkins asked teachers to explore what should be discussed in the writing conference with the child. One teacher said, "I'd like to know more about how she died." Another teacher, "I think readers need to know when she died." The last teacher, "I'd put my arms around her and offer my sympathy." Children write to communicate their thoughts and feelings. Teachers must respond in a way that demonstrates their understanding of what the child is trying to convey.

Effective teachers encouraged students to think like writers--to become "members of the club" (Smith, 1984).

> You can't write what you can't think about. Here's some ideas that you had: writing about your best friend Roy, writing about building a house. I think you need to spend a couple of minutes thinking about what you want to write about. That's what writers do.

As students were writing, teachers might point to a particularly clear description, an incident that caught their eye, a scary event, and praise the child, verifying his/her authorship role. The writer's progress was often noted. Problems became opportunities.

> Child: (reading his text) "First hold my hand." Hey, I left some words out.
>
> Teacher: You're getting to be a good editor. That's what an editor does. Do you know the last time we tried to do this, you couldn't find sentences at all? Now you really can find them. It's very hard, isn't it. It's like looking for.....
>
> C: Little mistakes.
>
> T: Jewels.

Teachers that fostered children's self-esteem as writers found that, despite the difficulty of the writing task, children began to enjoy writing. These children regarded the writing session as an opportunity to express themselves

in ways that were not found in other subject areas. In several cases, children who were particularly anxious in the beginning, started to relax, knowing that the teacher was there as a facilitator, and not as an evaluator.

Some teachers used humor effectively as a teaching device. One child who had a propensity to type with only one hand, was called the one-armed bandit. Another, who tended to repeat the word "and" too often suffered from a condition called "anditis." One child, for example, quite sullen in the beginning of the year, responded particulary well to this less formal atmosphere.

> Janet is writing on the computer. She sighs often as she writes. She sits with her feet on the side, and uses only one hand on the computer. Her posture and appearance suggest that she is not motivated.
>
> Teacher: How's your head, Janet?
>
> J: My head? My head? Nothing's wrong.
>
> T: Oh, I thought you had to hold it up.
>
> Both laugh appreciatively.

Rather than lecture the child on body posture, this teacher gently kidded her out of her negative behavior. This atmosphere of playfulness helped to break down a number of traditional barriers. Writing became a new form of communication between teacher and child.

Computer Role

We have heard the idea voiced that children will regard the writing product from the word processor as better than writing from pen and pencil. However, we would like to suggest that this is only partly true. The word processor does allow the child to see his/her work as a more professional looking product, however, we found that, only in a number of cases, did concern with the product overwhelm their need for authorship and satisfaction during the writing process. If they focused on expressing their ideas during

the writing process, and received continual feedback that those ideas were valuable, the process was positive, they regarded the product highly. If however, the process stressed multiple revisions, promotion of teacher content, a focus on writing *conventions*, then the child tended to disengage from the writing, regardless of how the final product looked.

When the computer fostered activities that allowed children to become like writers, it served a positive function as a writing tool. In one class, for example, children "published" a book of stories. These books were final versions of stories written on the computer. They included an author's autobiography, dedication, a table of contents as well as chapters in their stories. The computer significantly facilitated this process. These types of activities fostered students' self-esteem as writers.

The tendency, however, to use the computer to focus on the product, and not the process, was at times too compelling. Teachers, following a compliance model, tended to regard the successful writing session in terms of output measures. To create a good product sometimes outweighed the importance of the child's attitude toward writing.

> David is writing a story based on a picture stimulus. The picture shows a little boy crying, next to a fallen ice cream cone. The little boy's dog is licking his face.
>
> David types in the last sentence of his story: "To make him feel better, a soothing lick from Spotty."
>
> T: (reads the sentence) That's not a sentence. What do you mean? There's no action.
>
> C: A lick.
>
> T: That's the name of something.
>
> C: Oh. (David starts to erase the sentence)
>
> T: Why don't you say: A soothing lick from Spotty would make the little boy feel better.
>
> C: Yeah.
>
> David is confused. The sentence no longer 'works' for him.
>
> T: Oh well, why don't you leave it. It's not perfectly correct though.

David's sentence was not technically correct. It was, however, a beautiful expression, a thoughtful response to the picture. Rather than reacting to the content, and intent of the sentence, the teacher was drawn to its "problem," not its strength. An alternative approach would have been to praise the content first, and then at a later time, work on mechanics. While causal connections can not be made, it did appear that the computer, with its capabilities to easily delete and insert new materials, often fostered this type of teacher reaction. Since it was so easy to rearrange words and sentences, teachers stepped in with these revision comments too early. Praise for initial thoughts and ideas were often delayed to a final product, which might involve five or more revisions. However, all children, particularly those with learning disabilities, need more immediate reinforcement in writing.

CONCLUSION

This report has described a working model of a facilitating writing environment using the word processor with LD children. We found that the most critical component of the model was teacher intervention. These intervention techniques tended to have three overall characteristics. They gave children strategies for generating their own ideas rather than imposing teacher content, they encouraged children to focus their attention in the beginning on generating ideas, rather than on revising and editing, and they helped children manage their anxiety, by encouraging them to become "members of the club" of writers.

The word processor tended to be used as a major resource for teachers, allowing them to provide additional strategies and new opportunities for writing. But the word processor features alone did not facilitate good writing. Rather it was the teacher's approach that fostered the effective use of the computer. In this respect, teachers who brought a working knowledge of the writing process used the unique features of the word processor to further extend their repetoire of good writing strategies for children.

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